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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

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Applicant's or agent's file reference PRO 2000/01 PCT	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/DE00/00722	International filing date (day/month/year) 11 March 2000 (11.03.00)	Priority date (day/month/year) 12 March 1999 (12.03.99)
International Patent Classification (IPC) or national classification and IPC G02B 6/34		
Applicant PROFILE OPTISCHE SYSTEME GMBH		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of <u>5</u> sheets, including this cover sheet.
<input type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).  These annexes consist of a total of _____ sheets.
3. This report contains indications relating to the following items:  I <input checked="" type="checkbox"/> Basis of the report II <input type="checkbox"/> Priority III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability IV <input type="checkbox"/> Lack of unity of invention V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement VI <input type="checkbox"/> Certain documents cited VII <input type="checkbox"/> Certain defects in the international application VIII <input checked="" type="checkbox"/> Certain observations on the international application

Date of submission of the demand 12 October 2000 (12.10.00)	Date of completion of this report 21 December 2000 (21.12.2000)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

## I. Basis of the report

1. This report has been drawn on the basis of (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.*):

- the international application as originally filed.
- the description, pages 1-12, as originally filed,  
pages \_\_\_\_\_, filed with the demand,  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_,  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- the claims, Nos. 1-15, as originally filed,  
Nos. \_\_\_\_\_, as amended under Article 19,  
Nos. \_\_\_\_\_, filed with the demand,  
Nos. \_\_\_\_\_, filed with the letter of \_\_\_\_\_  
Nos. \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- the drawings, sheets/fig 1, as originally filed,  
sheets/fig \_\_\_\_\_, filed with the demand,  
sheets/fig \_\_\_\_\_, filed with the letter of \_\_\_\_\_,  
sheets/fig \_\_\_\_\_, filed with the letter of \_\_\_\_\_

2. The amendments have resulted in the cancellation of:

- the description, pages \_\_\_\_\_
- the claims, Nos. \_\_\_\_\_
- the drawings, sheets/fig \_\_\_\_\_

3.  This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

4. Additional observations, if necessary:

**INTERNATIONAL PRELIMINARY EXAMINATION REPORT**

International application No.

PCT/DE 00/00722

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. Statement**

Novelty (N)	Claims	1-15	YES
	Claims		NO
Inventive step (IS)	Claims	1-15	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-15	YES
	Claims		NO

**2. Citations and explanations**Claim 1

Neither the documents listed in the search report nor the prior art cited in the description discloses a transmission component for generating a desired chromatic dispersion, said component having two pairs of Bragg gratings. The subject matter of Claim 1 is therefore novel (PCT Article 33(2)).

The prior art does not suggest connecting a glass fibre optical waveguide that can execute a plurality of modes to two pairs of Bragg gratings, the first pair of Bragg gratings being selected such that the incoming wave, which is in mode I, passes grating 1 untouched, is reflected at grating 2 in mode II, is reflected at grating 1 in a forwards direction in mode III and passes grating 2 untouched. The second pair of Bragg gratings is chosen such that the passages, reflections and mode couplings described are repeated in the reverse sequence and direction. Moreover, said features permit a component that is shorter, is less expensive and, in particular, suffers fewer losses. The subject matter of Claim 1 therefore also involves an inventive step (PCT

Article 33(3)).

As is clear from the cited documents, the claimed transmission element also meets the requirements for industrial applicability (PCT Article 33(4)).

Claims 2 to 15

Claims 2 to 15 are dependent on Claim 1 and therefore likewise meet the PCT requirements for novelty and inventive step. They also meet the requirements for industrial applicability.

**VIII. Certain observations on the international application**

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

Claim 1

Claim 1 is vague and undefined (PCT Article 6), since it does not clearly describe the arrangement of the optical waveguide and the Bragg gratings, i.e. it is not clear that the optical waveguide is disposed between the individual Bragg gratings.

Furthermore, it is essential to the invention (see, for example, pages 9 and 10 and Figure 1) that the incoming wave in mode I passes the first grating untouched. Also, the third grating, that is the first grating of the second pair, is configured such that mode III passes it untouched. Since this is not defined in Claim 1, said claim is lacking an essential technical feature and is therefore unclear (PCT Article 6).

Claim 8

Dependent Claim 8 is unclear (PCT Article 6), since it attempts to define a technical feature of the claimed transmission component, i.e. the glass fibre, with reference to the fibres to be connected. The fibres to be connected are not, however, part of the claimed transmission component.

Claims 10 and 11

Claims 10 and 11 refer back, *inter alia*, to Claim 9. This results in inconsistency and therefore the

**VIII. Certain observations on the international application**

claims are unclear (PCT Article 6).